



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,163	07/08/2003	Munekazu Date	041309/262109	8272

826 7590 03/17/2004

ALSTON & BIRD LLP  
BANK OF AMERICA PLAZA  
101 SOUTH TRYON STREET, SUITE 4000  
CHARLOTTE, NC 28280-4000

EXAMINER
----------

SCHECHTER, ANDREW M

ART UNIT	PAPER NUMBER
----------	--------------

2871

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/615,163

Applicant(s)

DATE ET AL.

Examiner

Andrew Schechter

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 74,75,80,83,93,99,111,115,117,118,123,126,136,142,154 and 160 is/are rejected.
- 7) ☒ Claim(s) 105 and 148 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/361,856.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20030708.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Continuation of Disposition of Claims: Claims pending in the application are 74,75,80,83,93,99,105,111,115,117,118,123,126,136,142,148,154 and 160.

## **DETAILED ACTION**

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Objections***

2. Claims 105 and 148 are objected to because of the following informalities: the phrase "of liquid crystal area" is meaningless and should be deleted. Appropriate correction is required.
3. Claim 115 is objected to because of the following informalities: it depends on claim 89, which has been cancelled. Either its inclusion was an inadvertent error (which the examiner thinks is most likely) or it was intended to depend on claim 74, which would make it an exact duplicate of claim 111. Appropriate correction is required.

Assuming the latter is correct for examining purposes, applicant is advised that should claim 111 be found allowable, claim 115 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

4. Claim 154 is objected to because of the following informalities: it appears to be a corrupted version of claim 111. The limitation "a film lower in refractive index than a

Art Unit: 2871

dielectric multi-layered film” makes no sense, since a dielectric multi-layered film can have any refractive index, depending on what it is constructed of. For examining purposes, it is assumed the claim is meant to be exactly analogous to claim 111. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 74, 75, 80, 83, 99, 111, 115, 117, 118, 123, 126, 142, and 154 are rejected under 35 U.S.C. 102(b) as being anticipated by *Bergman*, U.S. Patent No. 5,581,380.

*Bergman* discloses [see Figs. 1 and 2] an optical device comprising a light transmissive plate-shaped light guide [7] for guiding light incident from an end surface [light from 3], an optical control layer [8] provided on a lower surface of said plate-shaped light guide through a transparent electrode [20] provided as a first electrode, a reflection film [10, see abstract] provided on a lower surface of said optical control layer, a second electrode [any one of 11-17] provided on a lower surface of said reflection film, and a substrate [6, or in the case of Fig. 2, layers 6 and 28 comprise the substrate] provided on a lower surface of said second electrode, wherein said optical control layer changes in scattering degree or diffraction efficiency [in this case, in scattering degree]

by an electric field applied by said first electrode and said second electrode [col. 6, lines 19-24]. Claim 74 is therefore anticipated.

Considering claim 117, *Bergman* also discloses a display apparatus comprising an optical device [as discussed above] and illumination means for applying light to said optical device [the lamp 3 and hollow reflector 4], said optical device having an end surface [adjacent to 3] for incident light from said illumination means, and the other features discussed above. Claim 117 is therefore anticipated as well.

*Bergman* also discloses that a light absorption film can be disposed between the said reflection film and the said second electrode ["a light-absorbing top coating", col. 7, lines 33-64]. Claims 75 and 118 are therefore anticipated as well.

In the embodiment of Fig. 1, at least one of the first and second electrodes comprises an electrode group divided into strips, and when both comprise groups divided into strips they are disposed perpendicular to each other [col. 5, line 58 – col. 6, lines 5, and see Fig. 1]. Claims 80 and 123 are therefore anticipated.

In the embodiment of Fig. 2, at least one of the first and second electrodes is divided into display pixel units [col. 8, lines 31-35], each with a switching device [31-37]. Claims 83 and 126 are therefore anticipated.

The optical control layer [8] comprises polymer dispersed liquid crystal made of liquid crystal particles dispersed in a polymer resin area [col. 6, lines 9-14]. Claims 99 and 142 are therefore anticipated.

*Bergman* discloses that the reflection film can be a dielectric multi-layered film [col. 10, lines 22-23]. Claims 111, 115, and 154 are therefore anticipated.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 93 and 136 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bergman*, U.S. Patent No. 5,581,380, as applied to claims 74 and 117 above, in view of *Doane et al.*, U.S. Patent No. 4,994,204.

*Bergman* does not disclose the additional limitations of claims 93 and 136, that the optical control layer is made of a reverse mode PDLC constructed by dispersing a low molecular-weight liquid crystal in a liquid crystalline polymer, becoming a uniform birefringent thin film when no electric field is applied and a scattering state when an electric field is applied. Rather, *Bergman's* PDLC is uniform when an electric field is applied and scattering when no electric field is applied.

*Doane* discloses using the "reverse mode" in an analogous liquid crystal device, including all the recited features [see col. 2, line 49 – col. 3, lines 10, and col. 9, line 12 – col. 10, line 7]. In fact, *Doane* discloses that the PDLC "can operate in the usual manner" or "can be made to operate in a reverse or 'fail-safe' mode such that the material is transparent in the absence of a field and is opaque in the field-ON state" [col. 2, lines 40-46]. This constitutes evidence that the equivalency of these two modes (the "usual" mode - the one disclosed by *Bergman* - and the "reverse mode") is recognized in the prior art. *Doane's* description emphasizes this equivalence: "the device is

Art Unit: 2871

transparent ... in one of a field-ON state or a field-OFF state, and ...the device is opaque in the other of the field-ON state or field-OFF state" [col. 2, lines 55-59]. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to use the "reverse mode", motivated by the equivalence of the two modes [see MPEP 2144.06]. Claims 93 and 136 are therefore unpatentable.

9. Claim 160 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Bergman*, U.S. Patent No. 5,581,380, as applied to claim 117 above, in view of *Fukuzawa et al.*, U.S. Patent No. 6,249,328.

*Bergman* does not disclose the additional limitations of claim 160; *Bergman* is silent on the whole question of producing a color display. *Fukuzawa* discloses an analogous LCD wherein the illumination means has at least red, blue, and green light sources [25-27] and means for successively switching the light sources in synchronization with the display image [see abstract]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so in the device of *Bergman*, motivated by *Fukuzawa's* teaching that by so doing, "a color display can be provided without employing a color filter conventionally required, and accordingly, manufacturing costs can be reduced... [also] ... resolution can be further increased," and also superior color reproduction can be obtained [col. 7, lines 45-65]. Claim 160 is therefore unpatentable.



***Allowable Subject Matter***

10. Claims 105 and 148 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

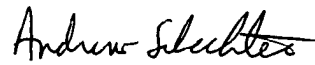
The prior art, in particular *Bergman*, does not disclose the device of claims 105 and 148, in particular the limitation that the optical control layer comprises holographic polymer dispersed liquid crystal having a structure periodically distributed in the form of a diffraction grating. Claims 105 and 148 would therefore be allowable if rewritten appropriately.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Andrew Schechter  
Patent Examiner  
Technology Center 2800  
19 February 2004